

Guideline for Infection Prevention at Medical Facilities

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Pandemic Influenza Experts Advisory Committee

Pandemic Influenza Preparedness Guidelines (From Phase 4 Onwards)

Guidelines for Infection Prevention at Medical Facilities [Overview]

Basic principles for infection prevention at medical facilities during pandemic

- In principle, the following countermeasures shall be taken continued from Phases 1 through 3.
- Standard prevention: Basic infection prevention measures applied to all patients
- Prevention by infection routes: Differing countermeasures against contact, droplet and aerial infections
- Other infection prevention measures based on findings accumulated following the start of pandemic

Outpatient departments

- **No to few pandemic influenza patients:**
Bolster interviews with outpatients
- **Increasing pandemic influenza patients:**
Outpatient triage

Hospitalization wards for patients in acute periods

- **Wearing N95 masks (surgical masks), eye protectors, gloves and gowns**
- **Hygiene of hands and fingers**
- **Cleaning**
- **Room control**
- **Restrictions of movements of and visits to patients**

Patients requiring long-term care

- **In principle, required countermeasures are the same as in hospitalization wards for patients in acute periods**
- **Must prevent outbreak in medical facilities due to virus brought in by staff or visitors to patients**

Home care

- **Must be careful about infection and transmission between care providers and receivers**

Pediatric wards

- **In principle, required countermeasures are the same as in hospitalization wards for patients in acute periods**
- **Must note that compliance rates with infection prevention measures are generally lower than among adult patients. Also note that there are frequent contacts between parents and children and between children.**
- **Must provide more sensitive mental care than to adult patients**

Dead patients

- **Dead patients shall be treated similarly as hospitalized patients.**
- **If families want to see dead patients, they shall be protected from infection.**
- **Bodies shall be put in impermeable bags during transfer.**
- **Pathogenic anatomists shall take sufficient infection prevention measures.**

Patient transfers

- **Secure safety of paramedics and consider human rights of transferred patients.**
- **Apply infection prevention measures throughout the transfer routes, and minimize the distance and time of transfer.**

Guidelines for Infection Prevention at Medical Facilities

1. Types of infection routes, and infection routes of pandemic influenza

(1) Contact infection

Infection through direct contact between the skin and membrane or wound, or indirect contact through intervening environment

(2) Droplet infection

Infection through large particles containing pathogens (droplets larger than five microns), scattering and attaching to other person's nasal or oral membrane, or conjunctiva; Droplets scatter during coughs, hiccups, conversation etc., and only reach a short distance (within one to two meters) without drifting in the air.

(3) Aerial infection

Infection through small particles containing pathogens (droplets the size of five microns or smaller), scattering and inhaled by other person; Aerial infection occurs during suction of the trachea, bronchoscopy and other manipulations at medical sites. Droplet nuclei are suspended in the air, and require special ventilation (including the use of negative pressure rooms) and filters to remove.

(4) Infection routes of influenza

- The main infection route of seasonal influenza, which occurs every year between humans, is considered to be droplet infection. Infection is also considered to be caused by touching eyes and nose with a contaminated hand (direct contact between the skin and membranes or conjunctiva), or by indirect contact through intervening environment.
- Aerosol may generate through endotracheal intubation, suction of the trachea, nebulization, bronchoscopy and other manipulations to infected patients. Aerosol contains droplet nuclei, and is considered to be possible cause of aerial infection. However, droplet nuclei of influenza do not fill the air in a room, unlike tuberculosis or measles. Therefore, aerial infection in this case only suggest transmission through droplet nuclei and other fine particles to health care workers conducting such manipulation or individuals located very close to them.

(5) Infection routes of pandemic influenza

Pandemic influenza has not occurred by this time, and therefore it is impossible to identify infection routes of pandemic influenza.

2. Types of infection prevention measures, and infection prevention measures for pandemic influenza

(1) Standard prevention

Standard prevention comprises basic infection prevention measures applied to all patients.

- 1) **Health care workers shall wear gloves if contacts with blood, bodily fluid, secretion (excluding perspiration), excretion etc. are expected. Health care workers shall remove gloves immediately after contacts and wash their hands.**
- 2) **Health care workers shall wear surgical masks, eye protectors (face shields or goggles) or gowns as appropriate if blood, bodily fluid, secretion (excluding perspiration), excretion etc. are expected to scatter at varying levels and from different regions.**
- 3) **Equipment and medical devices contaminated by blood, bodily fluid, secretion (excluding perspiration), excretion etc. shall be washed or disinfected appropriately before used to other patients.**
- 4) **The following respiratory hygiene and cough etiquettes shall apply to all medical institutions treating patients manifesting respiratory infection symptoms such as coughs and fevers.**
 - i) Staff contacting patients shall wear surgical masks.
 - ii) Recommend patients manifesting respiratory infection symptoms to wear surgical masks.
 - iii) Recommend patients to cover their mouth and nose when they cough or hiccup, as well as turning their face off of others and keeping distance of at least one meter.
 - iv) Install covered trash boxes so that tissue paper containing respiratory secretion can be disposed of immediately.
 - v) Install necessary equipment for hand washing (disinfection of hands and fingers) with running water or alcohol agents.

(2) Prevention by infection routes

In addition to standard prevention, differing countermeasures shall be applied to patients against contact, droplet and aerial infections.

1) Countermeasures against contact infection

Patients shall be hospitalized in private rooms. If private rooms run short, house patients of the same disease shall be hospitalized in the same room. Health care workers shall wear gloves before entering patients' rooms. Health care workers shall remove gloves immediately after leaving patients' rooms, and disinfect their hands and fingers immediately. They shall also wear gowns if bodily contacts with patients are expected.

2) Countermeasures against droplet infection

Patients shall be hospitalized in private rooms. If private rooms run short, keep distance of at least two meters between patients' beds. Also install curtains or other barriers

between patients. Health care workers shall wear surgical masks before going near patients.

3) Countermeasures against aerial infection

Patients shall be hospitalized in private negative pressure rooms. Health care workers shall wear N95 masks before entering patients' rooms. If patients need to go out of their rooms for medical checks etc., they shall wear surgical masks.

(3) Infection prevention measures for pandemic influenza

- Patients of pandemic influenza have not occurred by this time, and therefore it is impossible to identify infection routes of pandemic influenza or scientific grounds for infection prevention measures. The Infection Prevention Guidelines for Patients of H5N1 Avian Influenza (for Phase 3), issued in June 2006, stated that it is desirable to take all of standard prevention measures and countermeasures against contact, droplet and aerial infections. This is because influenza has traits of respiratory diseases, the cases of human transmission of H5N1 avian influenza indicates high fatality rate, no one is immune to H5N1 avian influenza, and there is no proved vaccines at this point. For the similar reasons, it is considered appropriate to apply infection prevention measures equivalent to the above to pandemic influenza patients in Phases 4, 5 and so on.
- If pandemic influenza outbreaks and patients start to occur, scientific findings will be accumulated, revealing routes of infection and clarifying required infection prevention measures. At the same time, transmission of pandemic influenza will become prevalent in local communities, rather than at medical institutions. In such stages, it will become imbalanced to take a high level of infection prevention measures at medical institutions only, and therefore health care workers are likely to shift to simpler prevention featuring countermeasures against droplet infection, just like prevention measures for seasonal influenza.
- Even in such stages, health care workers conducting endotracheal intubation, suction of the trachea, nebulization, bronchoscopy and other manipulations to infected patients are recommended to take a high level of infection prevention measures (wearing caps, eye protectors (face shields or goggles), N95 masks or gowns).

(4) Personal protective equipment

Anybody who contact or may contact pandemic influenza patients to provide medical treatment or care shall wear appropriate personal protective equipment (PPE). PPE includes the following items, which are used for applications described respectively.

- 1) Surgical masks: Protect the wearers from inhaling droplets containing pathogens through nose or mouth. Also prevent the scattering of droplets etc. if worn by infected persons.**
- 2) N95 masks: Protect the wearers from inhaling droplet nuclei containing pathogens through nose or mouth. (Note: "N95" is a standard specified by the U.S. National Institute for Occupational Safety and Health. Some masks satisfy N99 or other standards higher than N95, though they are rarely used at medical sites.)**

- 3) **Face shields or goggles: Prevent wearers' eyes from droplets containing pathogens, if the scattering of droplets is expected around their face.**
- 4) **Gloves: Prevent pathogens from attaching to hands and fingers of wearers.**
- 5) **Gowns: Prevent pathogens from attaching to the body and arms of wearers, as well as protecting wearers' clothes from contamination.**

The wearing of PPE reduces infection risks at medical facilities, and forms a very important part of infection prevention against influenza at medical institutions. However, infection prevention does not complete with the wearing of PPE only. Besides, PPE does not exercise its effects if worn inappropriately. It may even expose wearers to higher risks due to the sense of security during wearing. To avoid such situations, take note of the following points.

- Health care workers shall learn how to wear and remove PPE appropriately, and take the relevant training in advance.
- Groups, committees etc. in charge of infection prevention at individual medical institutions shall train their health care workers in advance, on how to wear and remove PPE appropriately.
- Health care workers shall realize once again that hand washing (disinfection of hands and fingers) is critical in infection prevention.
- Health care workers shall wear PPE before entering patients' rooms, and remove it afterwards in appropriate locations.

Refer to specific options of PPE and detailed methods for wearing and removing, published and renewed frequently on the website of the Infectious Disease Surveillance Center, National Institute of Infectious Diseases.

[Reference]

“Use of Personal Protective Equipment (PPE) pertaining to Contacts with Patients in Countermeasures against Avian (H5N1) and Pandemic Influenza (Phases 3 to 5),”
Infectious Disease Surveillance Center, National Institute of Infectious Diseases
<http://idsc.nih.go.jp/disease/influenza/05pandemic.html>

3. Infection prevention at different departments of medical institutions

(1) Outpatient departments

1) General patient control

- If there are no to few pandemic influenza patients in Japan, outpatient departments shall bolster interviews with outpatients.
- If pandemic influenza becomes prevalent and the number of patients increases, outpatient triage (described later) shall be put into place to minimize transmission at outpatient departments.
- If medical institutions accept pandemic influenza patients transferred from other institutions, patients shall be accepted directly into the dedicated ward, without entering normal outpatient areas. Emergency or special outpatient units may also be used.
- During pandemic, it is recommended to concentrate resources on indispensable outpatient services. The scale of outpatient services should be diminished to minimize transmission at outpatient departments. In particular, outpatient services for the follow-up of chronic diseases or for precautionary processes before surgical operations or internal checkups shall be suspended or minimized as far as possible. Telephone service or other support services shall be provided during such period.

2) Outpatient triage

- Refers to centralizing accesses by outpatients in a single location at a hospital, and separating patients manifesting respiratory symptoms or high fevers (i.e. suspected patients of pandemic influenza) from other outpatients.
- Suspected patients of pandemic influenza shall be guided to a dedicated area, while other patients shall be guided to regular outpatient departments.
- If sufficient space for triage cannot be secured in hospital buildings, it is also acceptable to implement triage in tents put up outside. In such cases, it is desirable to use as large tents as possible, to provide efficient triage to many patients, keeping distance between patients and securing ventilation.

3) Masks and eye protectors

- If patients of pandemic influenza are identified in Japan (Phase 4B) or a considerable number of pandemic influenza patients occur in other countries (Phase 5A), staff at outpatient departments of medical institutions are recommended to wear surgical masks at all times as far as possible.
- Staff at outpatient departments shall have suspected patients of pandemic influenza wear surgical masks as promptly as possible. Individuals receiving outpatients shall wear surgical masks during interviews. Staff shall wear N95 masks and eye protectors (face shields or goggles) when they receive pandemic influenza patients or similar patients. If the number of patients increases substantially, N95 masks become less available, or the use of N95 masks for other patients or manipulations is prioritized, N95 masks shall be replaced with surgical masks.

4) Hygiene of hands and fingers

- All individuals including health care workers and patients shall recognize that hand washing with running water and soap, or disinfection of hands and fingers with alcohol agents, is the basis of infection prevention.
- Individuals contacting pandemic influenza patients or similar patients, or their things or surroundings, shall disinfect hands and fingers. If there are visible stains on hands and fingers, first wash with running water and soap.

5) Gloves

- Health care workers shall always wear gloves when they contact pandemic influenza patients or similar patients. Staff shall also wear gloves when they contact other patients, if they conduct manipulations involving patients' blood, bodily fluid, secretion or membranes.
- Health care workers shall remove gloves immediately after manipulations or cares, and wash their hands with running water and soap, or disinfect hands and fingers with alcohol agents. Gloves shall not be used again with or without washing.

6) Gowns

- Health care workers shall wear gowns (preferably with long sleeves) if their clothes may contact pandemic influenza patients or similar patients, surfaces of surrounding equipment or goods in their rooms. Staff shall also wear gowns when they contact other patients, if they conduct manipulations that may contaminate their clothes with patients' blood, bodily fluid, secretion or excretion.
- Gowns shall be put off immediately after use, and disposed of appropriately.

7) Medical devices used for patients

- Stethoscopes, manometers, clinical thermometers and other medical devices used for pandemic influenza patients or similar patients shall be washed, disinfected and/or sterilized by appropriate methods that are normally applied to respective devices, before using for other patients (See Attachment 1).

8) Cleaning, linens, wastes etc.

- Areas and equipment contaminated by secretion etc. from pandemic influenza patients or similar patients shall be cleaned immediately. Cleaning staff shall wear gloves, N95 masks, eye protectors (face shields or goggles) and gowns. If the number of patients increases substantially in Phase 6, N95 masks become less available, or the use of N95 masks for other patients or manipulations is prioritized, N95 masks shall be replaced with surgical masks. The floor and other parts of facilities shall be cleaned and dusted by methods that do not raise dust, such as wiping with a mop or using a vacuum cleaner installed with a HEPA filter. Wipe and disinfect contaminated areas with sodium hypochlorite solution or alcohol as necessary (See Attachment 1).

- Linens and wastes pertaining to the care of pandemic influenza patients or similar patients shall be treated appropriately just like other linens and wastes.

9) Individuals accompanying outpatients

- Individuals accompanying outpatients shall be separated from patients as soon as pandemic influenza is suspected. In the case of children or other patients who cannot receive medical examination by themselves, accompanying individuals shall remain on their side wearing N95 masks, gloves, eye protectors (face shields or goggles) and gowns.

(2) Hospitalization wards

1) Masks and eye protectors (face shields or goggles)

- Staff shall wear N95 masks and eye protectors (face shields or goggles) when they contact pandemic influenza patients or similar patients. If the number of patients increases substantially, N95 masks become less available, or the use of N95 masks for other patients or manipulations is prioritized, N95 masks shall be replaced with surgical masks. Health care workers must wear N95 masks, not surgical masks, when they conduct endotracheal intubation, suction of the trachea, nebulization, bronchoscopy and other manipulations that may generate aerosol to hospitalized patients of pandemic influenza.

2) Hygiene of hands and fingers

- All individuals including health care workers and patients shall recognize that hand washing with running water and soap, or disinfection of hands and fingers with alcohol agents, is the basis of infection prevention.
- Individuals contacting pandemic influenza patients or similar patients, or their things or surroundings, shall disinfect hands and fingers. If there are visible stains on hands and fingers, first wash with running water and soap.

3) Gloves

- Health care workers shall always wear gloves when they contact pandemic influenza patients or similar patients. Staff shall also wear gloves when they contact other patients, if they conduct manipulations involving patients' blood, bodily fluid, secretion or membranes.
- Health care workers shall remove gloves immediately after manipulations or cares, and wash their hands with running water and soap, or disinfect hands and fingers with alcohol agents. Gloves shall not be used again with or without washing.

4) Gowns

- Health care workers shall wear gowns (preferably with long sleeves) if their clothes may contact pandemic influenza patients or similar patients, surfaces of surrounding equipment or goods in their rooms. Staff shall also wear gowns when they contact other patients, if they conduct manipulations that may contaminate their clothes with patients' blood, bodily fluid, secretion or excretion.
- Gowns shall be put off immediately after use, and disposed of appropriately.

5) Medical devices used for patients

Stethoscopes, manometers, clinical thermometers and other medical devices used for pandemic influenza patients or similar patients shall not be shared with other patients. If such devices need be used for other patients for inevitable reasons, they shall be washed, disinfected and/or sterilized by appropriate methods that are normally applied to respective devices, before using for other patients (See Attachment 1).

6) Cleaning, linens, wastes etc.

- Areas and equipment contaminated by secretion etc. from pandemic influenza patients or similar patients shall be cleaned immediately. Cleaning staff shall wear gloves, N95 masks, eye protectors (face shields or goggles) and gowns. If the number of patients increases substantially, N95 masks become less available, or the use of N95 masks for other patients or manipulations is prioritized, N95 masks shall be replaced with surgical masks. The floor and other parts of facilities shall be cleaned and dusted by methods that do not raise dust, such as wiping with a mop or using a vacuum cleaner installed with a HEPA filter. Wipe and disinfect contaminated areas with sodium hypochlorite solution or alcohol as necessary (See Attachment 1).
- Linens and wastes pertaining to the care of pandemic influenza patients or similar patients, as well as utensils used by such patients, shall be treated appropriately just like other linens, wastes and utensils.

7) Room control and cohorting

- Pandemic influenza patients or similar patients shall be hospitalized in private negative pressure rooms. If negative pressure rooms are unavailable, such patients shall be hospitalized in private rooms equipped with an independent ventilation system. The doors to such rooms shall be kept closed. Sufficient ventilation must be ensured, by opening windows facing the exterior air or by using ventilation fans. In such cases, it must be confirmed that the relevant windows and fans do not face directly residential areas. It is also an option to purify the air in the room with a mobile ventilator equipped with a HEPA filter.
- If the number of pandemic influenza patients increases and it becomes difficult to provide private rooms to all patients, or if infection routes of pandemic influenza have been identified and it is considered that only countermeasures against droplet infection are required, multiple-bed rooms should be used. In such cases, depending on the numbers of pandemic influenza patients and similar patients, medical institutions shall implement “cohorting,” which classifies and isolates patients in the following cohorts.
 - Confirmed patients of pandemic influenza, who are in serious conditions and require manipulations that may generate aerosol (such as endotracheal intubation and bronchoscopy) (the top-priority cohort to be hospitalized in private rooms);
 - Confirmed patients of pandemic influenza excluding the above;
 - Suspected patients of pandemic influenza, or individuals exposed to pandemic influenza;
 - Individuals who were infected by and have recovered from (i.e. are immune to) pandemic influenza (May be combined with the above cohort); and
 - Individuals who have not been exposed to or infected by pandemic influenza, and considered to develop serious complications once infected (In Phase 6, it is desirable to hospitalize such patients in medical institutions excluded from pandemic influenza treatment).

8) Hospitalization and treatment for other diseases

- If Phase 6 is declared, or if a substantial number of pandemic influenza patients are hospitalized during Phase 5, medical institutions shall suspend precautionary medical services (less urgent hospitalization before surgical operations or internal checkups) in principle, with aims to prevent transmission of pandemic influenza from its patients to patients of other diseases, and to use limited medical resources effectively.
- Individuals who have recovered from influenza shall be discharged as soon as they become non-infectious, or cared in the “non-influenza” cohort.

9) Restriction of movements of hospitalized patients

- Pandemic influenza patients or similar patients shall not leave their rooms unless necessary. If patients need to go out of their rooms for medical checks etc., they shall wear surgical masks, and be guided through routes isolated from other patients or individuals as far as possible. Hooded wheelchairs or stretchers are unnecessary in principle, but this does not apply to cases where the use of such equipment is considered preferable due to routes overlapping with those of other patients.

10) Restriction of visits to patients

- Visits to pandemic influenza patients or similar patients shall be prohibited in principle. This does not apply to special situations, where relatives visit patients near death etc. Visitors must wear N95 masks, gloves, eye protectors (face shields or goggles) and gowns. If Phase 6 is declared, or if a substantial number of pandemic influenza patients are hospitalized during Phase 5, visits shall not be restricted, and visitors shall wear surgical masks.
- In Phases 4 and 5, medical institutions shall notify to every visitor to their facilities that pandemic influenza patients are hospitalized. Visitors shall wear surgical masks before entering patients’ wards.

11) Mental care during isolation in private rooms

- Patients isolated in private rooms are under mental stress, and health care workers shall recognize the necessity for mental care to such patients. Their rooms shall be equipped at least with outside telephone lines. The use of a cellular phone in a private room shall be permitted, unless medical equipment affected by radio waves is in operation inside the room.

12) Discontinuation of isolation

- The isolation of confirmed patients of pandemic influenza shall be discontinued after a specified period following the disappearance of symptoms.
- The isolation of suspected patients of pandemic influenza shall not be discontinued until such suspicion is denied.

(3) Patients requiring long-term care at facilities for convalescence or long-term hospitalization

- Long-term care facilities house aged residents and patients with underlying diseases, who are considered particularly vulnerable to pandemic of influenza. In addition, appropriate control of artificial respirators, for example, may be difficult at such facilities, because they usually do not handle acute diseases. Therefore, if (suspected) patients of pandemic influenza occur at such facilities, it is preferable to transfer them to acute-term treatment facilities, considering medical capacity at the original facilities. For infection prevention until the transfer, see “(2) Hospitalization wards” above. If pandemic proceeds, acute-term treatment facilities will become no longer able to accept patients transferred from long-term care facilities. In such cases, take infection prevention measures as described in “(2) Hospitalization wards” above.
- At long-term care facilities, residents and patients come in and go out less frequently. Therefore, it is essential to prevent the internal outbreak of pandemic influenza caused by virus brought in by staff or visitors. (The following instructions place emphasis on this point. Please also refer to “(2) Hospitalization wards.”)

1) Masks

- If pandemic influenza becomes prevalent in Japan (during Phase 5B or Phase 6B), staff members manifesting respiratory symptoms and all visitors to facilities shall wear surgical masks.

2) Room control and cohorting

- In the early stage of pandemic influenza, suspected patients shall be immediately moved to private rooms, and subsequently transferred to acute-term care medical institutions. (See “6. Infection Prevention during Transfers of Patients” for related points of attention.)
- If pandemic proceeds and acute-term medical institutions become no longer able to accept additional patients, transfers shall be discontinued.
- If pandemic proceeds further, it becomes difficult to provide private rooms to all patients, multiple-bed rooms should be used. In such cases, depending on the numbers of confirmed and suspected patients of pandemic influenza, long-term care facilities shall implement “cohorting” (See “(2) Hospitalization wards.”).

3) Hospitalization and treatment for other diseases

- In the early stage of pandemic influenza, staff of facilities shall explain to residents and their families that the stay (hospitalization) at facilities should cause direct risks of infection by pandemic influenza.

4) Restriction of movements of hospitalized patients

- Confirmed or suspected patients of pandemic influenza shall not leave their rooms unless necessary. If patients need to go out of their rooms, they shall wear surgical masks, and be guided through routes isolated from other patients or individuals as far as possible.

5) **Restriction of visits to patients**

- Visitors shall be checked for respiratory symptoms, and denied visits if such symptoms are identified. This does not apply to special situations, where relatives, including those with respiratory symptoms, visit patients near death etc. Visitors shall wear surgical masks, and shall not contact other patients or residents.

(4) **Home care**

Unlike medical institutions etc., individuals' homes are not visited by a large number of people at a time. Therefore, it is important to prevent transmission between care providers and receivers.

In the early stage of pandemic influenza, individuals under home care may be reported as suspected patients of pandemic influenza by care providers, on very rare occasions. In this stage, pandemic influenza patients are basically hospitalized to medical institutions. Therefore,

- Care providers shall identify the health status of care receivers by phone etc. in advance;
- If care receivers manifest respiratory symptoms or have high fevers, care providers shall either instruct them to consult medical institutions designated for pandemic influenza, or provide care to them after taking sufficient infection prevention measures (See "(1) Outpatient departments"); and
- In the latter cases, care providers shall bring a sufficient number of surgical masks, gloves, alcohol agents to disinfect hands and fingers with, gowns and eye protectors (face shields or goggles) to the receivers' homes;

as basic precautions during home care.

As pandemic proceeds, an increasing number of pandemic influenza patients will be shifted from hospitalized to outpatient treatment. In such cases, care providers shall take sufficient infection prevention measures (See "(1) Outpatient departments") before visiting patients.

(5) Pediatric wards

Influenza is a disease common to adults and children, and basic countermeasures are the same as well. However, there are factors unique to children, such that compliance rates with infection prevention measures are generally lower than among adult patients, that there are frequent contacts between parents and children and between children, and that infected children take more time to discharge virus than adult patients (as to H5N1 subtype influenza). Therefore, measures must be taken at pediatric wards considering such points of attention.

1) Masks and eye protectors

- Staff shall wear N95 masks and eye protectors (face shields or goggles) when they contact children infected by pandemic influenza or similar children. If the number of patients increases substantially, N95 masks become less available, or the use of N95 masks for other patients or manipulations is prioritized, N95 masks shall be replaced with surgical masks. Health care workers must wear N95 masks, not surgical masks, when they conduct endotracheal intubation, suction of the trachea, nebulization, bronchoscopy and other manipulations that may generate aerosol to hospitalized patients of pandemic influenza.
- Families or other individuals accompanying infected children shall wear N95 masks as well. Staff shall explain the necessity for wearing masks to families or other accompanying individuals. Theoretically, such families and individuals shall also wear eye protectors (face shields or goggles), but the effect of eye protectors to prevent infection is considered minor with such people, because they spend much time together with infected children. It is unrealistic to instruct them to wear eye protectors continuously in such situations.

2) Hygiene of hands and fingers

- All individuals including health care workers, infected children and their families shall recognize that hand washing with running water and soap, or disinfection of hands and fingers with alcohol agents, is the basis of infection prevention.
- Individuals contacting children infected by pandemic influenza or similar children, or their things or surroundings, shall disinfect hands and fingers. If there are visible stains on hands and fingers, first wash with running water and soap.

3) Gloves

- Health care workers shall always wear gloves when they contact children infected by pandemic influenza or similar children. Staff shall also wear gloves when they contact other patients, if they conduct manipulations involving patients' blood, bodily fluid, secretion or membranes.
- Health care workers shall remove gloves immediately after manipulations or cares, and wash their hands with running water and soap, or disinfect hands and fingers with alcohol agents. Gloves shall not be used again with or without washing.
- Theoretically, families and other individuals accompanying infected children shall also wear gloves continuously, but the effect of gloves to prevent infection is considered

minor with such people, because they spend much time together with infected children. It is unrealistic to instruct them to wear gloves continuously in such situations.

4) Gowns

- Health care workers shall wear gowns (preferably with long sleeves) if their clothes may contact children infected by pandemic influenza or similar children, surfaces of surrounding equipment or goods in their rooms. Staff shall also wear gowns when they contact other patients, if they conduct manipulations that may contaminate their clothes with patients' blood, bodily fluid, secretion or excretion.
- Gowns shall be put off immediately after use, and disposed of appropriately.
- Theoretically, families and other individuals accompanying infected children shall also wear gowns, but the effect of gowns to prevent infection is considered minor with such people, because they spend much time together with infected children. It is unrealistic to instruct them to wear gloves continuously in such situations.

5) Medical devices used for infected children

- Stethoscopes, manometers, clinical thermometers and other medical devices, as well as toys, used for children infected by pandemic influenza shall not be shared with other children. If such devices need be used for other children for inevitable reasons, they shall be washed, disinfected and/or sterilized by appropriate methods that are normally applied to respective devices, before using for other children (See Attachment 1).

6) Cleaning, linens, wastes etc.

- Areas and equipment contaminated by secretion etc. from children infected by pandemic influenza or similar children shall be cleaned immediately. Cleaning staff shall wear gloves, N95 masks, eye protectors (face shields or goggles) and gowns. If the number of patients increases substantially in Phase 6, N95 masks become less available, or the use of N95 masks for other patients or manipulations is prioritized, N95 masks shall be replaced with surgical masks. The floor and other parts of facilities shall be cleaned and dusted by methods that do not raise dust, such as wiping with a mop or using a vacuum cleaner installed with a HEPA filter. Wipe and disinfect contaminated areas with sodium hypochlorite solution or alcohol as necessary (See Attachment 1).
- Linens and wastes pertaining to the care of children infected by pandemic influenza or similar children, as well as utensils used by such children, shall be treated appropriately just like other linens, wastes and utensils.

7) Room control and cohorting

- Children infected by pandemic influenza or similar children shall be hospitalized in private negative pressure rooms. If negative pressure rooms are unavailable, such children shall be hospitalized in private rooms equipped with an independent ventilation system. The doors to such rooms shall be kept closed. Sufficient ventilation must be ensured, by opening windows facing the exterior air or by using ventilation fans. In such cases, it must be confirmed that the relevant windows and fans do not face directly residential areas. It is also an option to purify the air in the room with a mobile ventilator equipped with a HEPA filter.

- If the number of children infected by pandemic influenza increases and it becomes difficult to provide private rooms to all infected children, or if infection routes of pandemic influenza have been identified and it is considered that only countermeasures against droplet infection are required, multiple-bed rooms should be used. In such cases, depending on the numbers of children infected by pandemic influenza and similar children, medical institutions shall implement “cohorting,” which classifies and isolates infected children in the following cohorts.
 - Confirmed patients of pandemic influenza, who are in serious conditions and require manipulations that may generate aerosol (such as endotracheal intubation and bronchoscopy) (the top-priority cohort to be hospitalized in private rooms);
 - Confirmed patients of pandemic influenza excluding the above;
 - Suspected patients of pandemic influenza, or children exposed to pandemic influenza;
 - Children who were infected by and have recovered from (i.e. are immune to) pandemic influenza (May be combined with the above cohort); and
 - Children who have not been exposed to or infected by pandemic influenza, and considered to develop serious complications once infected (In Phase 6, it is desirable to hospitalize such children in medical institutions excluded from pandemic influenza treatment).

8) Hospitalization and treatment for other diseases

- If Phase 6 is declared, or if a substantial number of children infected by pandemic influenza are hospitalized during Phase 5, medical institutions shall suspend precautionary medical services (less urgent hospitalization before surgical operations or internal checkups) in principle, with aims to prevent transmission of pandemic influenza from infected children to uninfected children, and to use limited medical resources effectively.
- Children who have recovered from influenza shall be discharged as soon as they become non-infectious, or cared in the “non-influenza” cohort.

9) Restriction of movements of hospitalized children

- Children infected by pandemic influenza or similar children shall not leave their rooms unless necessary. If children need to go out of their rooms for medical checks etc., they shall wear surgical masks, and be guided through routes isolated from other patients or individuals as far as possible. Hooded wheelchairs or stretchers are unnecessary in principle, but this does not apply to cases where the use of such equipment is considered preferable due to routes overlapping with those of other patients.

10) Restriction of visits to hospitalized children

- Visitors with respiratory symptoms shall be denied visits to hospitalized children. This does not apply to special situations, where relatives visit patients near death etc. Visitors shall wear surgical masks, and shall not contact other patients or residents.
- In any phase, visits to children infected by pandemic influenza with an aim to increase their mental comfort shall be permitted as far as possible. Visitors shall wear N95 masks. Parents of hospitalized children or other individuals contacting them frequently shall examine the use of eye protectors (face shields or goggles) and gowns as well.

- In Phases 4 and 5, medical institutions shall notify to every visitor to pediatric wards that children infected by pandemic influenza are hospitalized in their buildings. Visitors who want or need to meet children in their buildings shall wear surgical masks before entering the wards.

11) Mental care during isolation in private rooms

- Children isolated in private rooms are under even greater mental stress than adult patients, and health care workers shall recognize the strong necessity for mental care to such children. The use of a cellular phone in a private room shall be permitted, unless medical equipment affected by radio waves is in operation inside the room.

12) Discontinuation of isolation

- The isolation of confirmed patients of pandemic influenza shall be discontinued after a specified period following the disappearance of symptoms.
- The isolation of suspected patients of pandemic influenza shall not be discontinued until such suspicion is denied.

4. Care to dead patients

If, unfortunately, pandemic influenza patients die, staff shall undertake posthumous process with extreme care, in terms of both infection prevention and spiritual, religious and cultural considerations.

Usually, patients die in hospital facilities. Infection prevention measures required immediately after patients' deaths shall be the same as those for hospitalized pandemic influenza patients. See "3-(2) Hospitalization wards" of these guidelines. Additional points of attention include the following.

- If families etc. want to go near to or touch a dead patient, their requests shall be met as far as possible. In such cases, families etc. shall wear N95 masks, gowns, eye protectors (face shields or goggles) and gloves.
- Bodies shall be put completely in impermeable bags, and brought out of the ward.
- If pathogenic anatomy is required, pathogenic anatomists and other health care workers shall take all of the standard prevention measures, and countermeasures against contact, droplet and aerial infections. Even after all such measures have been taken, manipulations that may generate aerosol (fine particles containing moisture) shall be avoided as far as possible.
- If pandemic influenza patients die at home, infection prevention measures required immediately after patients' deaths shall be the same as described above. Families who have contacted patients closely over an extended period do not need masks, gowns, eye protectors or gloves when they go near to or touch dead patients. Infection prevention measures required in the subsequent process are as follows.

- If bodies are put and sealed in impermeable bags, additional infection prevention measures are not required for individuals transferring the bodies.
- Funeral homes accepting the bodies shall be notified that they were pandemic influenza patients.
- Funeral operators shall take the standard prevention measures. They shall wear surgical masks and eye protectors (face shields or goggles) if patients' blood, bodily fluid, secretion or excretion may scatter around their face.
- If families want to go near to the bodies during funeral, their requests shall be met as far as possible. In such cases, families shall wear surgical masks and gloves.

5. Infection Prevention during Transfers of Patients

Transfers of patients are required if requested by (suspected) patients of pandemic influenza, if pandemic influenza patients occur at facilities inappropriate for their hospitalization, or if pandemic influenza patients consult medical institutions inappropriate for their hospitalization. During transfers of patients, safety of paramedics must be secured through sufficient infection prevention measures, and appropriate considerations shall be given to human rights of transferred patients. Infection prevention measures required during transfers of patients are described below. Paramedics shall take all of the standard prevention measures, and countermeasures against contact, droplet and aerial infections, and minimize the distance and time of transfer.

1) Patients

- Patients shall wear surgical masks, unless they are under endotracheal intubation.
- Patients under respiration control shall be accompanied by a physician with sufficient knowledge and experience in infection prevention.
- Patients may walk on their own if they can. Wheelchairs and stretchers shall be used as necessary. Hooded wheelchairs or stretchers (such as so-called "isolators") are unnecessary when patients travel open space or areas clear of other patients or individuals. However, this does not apply to cases where the use of such equipment is considered preferable due to routes overlapping with those of other patients.
- Patients shall be instructed to refrain from touching equipment inside transfer vehicles etc.

2) Paramedics

- Paramedics shall wear N95 masks, eye protectors (face shields or goggles), gloves and gowns. They shall also wear plastic aprons, caps, shoe covers and rubber boots as necessary. Such PPE shall be renewed after every transfer to avoid secondary infection.
- Paramedics shall avoid contaminating the surrounding areas or equipment during transfer. In particular, gloves shall be exchanged immediately if contaminated. When they are exchanged, hands and fingers shall be disinfected.

- Special attention is required to handle removed masks, gloves, gowns etc. These shall be handled properly, with contaminated sides facing inward and touching anything else, and disposed of as infectious wastes.
- See Attachment 2 for the list of equipment and supplies to prepare before patient transfers.

3) Vehicles used for patient transfers (including vessels and airplanes)

- It is desirable that there is an isolated area to put patients in. In the case of a vehicle, it is preferable that the compartment for patients is separated from that for the driver and paramedics. If the compartments are not partitioned, space to carry patients shall be surrounded temporarily with curtains made of plastics or other impermeable materials, thereby preventing the spread of pathogens.
- The compartment or space to carry patients shall be structured as simply and flatly as possible, considering the subsequent cleaning and disinfection. The compartment or space shall be clear of equipment as far as possible. If there is fixed equipment, it shall be covered with water repellent nonwoven fabric etc. to prevent contamination.
- Following the transfer of patients, visible contaminations on vehicles etc. shall be wiped off and disinfected. Areas touched frequently with hands shall be wiped and disinfected even if there is no visible contamination.

4) Others

- Take measures to minimize worries of patients.
- In the case of transfer by automobiles, patients' families shall not travel in the same cars as patients. The cases of transfer by vessels or airplanes shall be determined respectively.
- Paramedics shall notify the accepting medical institutions in advance that the transferred individuals are (suspected) patients of pandemic influenza, so that the accepting institutions will be able to take necessary infection prevention measures before the patients' arrival.
- If the possibility of infection by pandemic influenza was not suspected at all until the transfer completes, and if the relevant patient is later revealed to have been infected by pandemic influenza, health centers and other related institutions shall jointly conduct health monitoring of paramedics involved in the relevant transfer, in line with the Proactive Epidemiological Research Guidelines for Pandemic Influenza.
- Agencies in charge of transfers of pandemic influenza patients, medical institutions, municipalities, prefectural governments and other related institutions shall discuss in advance appropriate methods for treating infectious wastes generated from transfers.

Attachment 1 Disinfection of Pandemic Influenza Virus

1) Medical devices and supplies

Disinfect in water of 80°C for ten minutes;
Wipe with or soak for thirty minutes in sodium hypochlorite solution at a concentration of 0.05 to 0.5 w/v% (500 to 5,000 ppm);
Soak in glutaral at a concentration of 2 w/v to 3.5 w/w% for thirty minutes;
Soak in phthalal at a concentration of 0.55 w/v% for thirty minutes;
Soak in peracetic acid at a concentration of 0.3 w/v% for ten minutes;
Wipe with or soak in isopropanol or disinfectant ethanol of 70 v/v%

2) Rooms and surrounding equipment

Wipe with sodium hypochlorite solution at a concentration of 0.05 to 0.5 w/v% (500 to 5,000 ppm);
Wipe with disinfectant ethanol;
Wipe with isopropanol of 70 v/v%

3) Disinfection of hands and fingers

Use quick drying rubbing disinfectant alcohol agents (See the agents' instructions for usage.)

Attachment 2 Equipment and Supplies Required for Transfers of Patients

(This attachment assumes transfer by vehicle.

Modify the list accordingly in the case of transfer by vessel or airplane.)

- N95 masks: Twice the number of paramedics
- Surgical masks: As appropriate (for transferred patients)
- Gloves: One box
- Face shields, goggles and gowns: Twice the number of transferred patients
- Shoe covers, rubber boots and caps: Twice the number of paramedics (May be dispensed with)
- Disinfectant alcohol agent for hands and fingers: One
- Sodium hypochlorite solution: One bottle
- Wiping materials (such as towels and gauzes), containers to put infectious wastes in
- Others (plastic sheets etc.)

